## REMARKS

Claims 1-9 and 15-20 remain pending for the present application.

Applicants respectively request reconsideration of the above referenced

application in view of the above claim amendments and the remarks presented

below.


35 U.S.C. Section 112 rejections:

The above referenced Office Action reject Claim 15 as containing subject

matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the

time the application was filed, had possess on of the claimed invention.

Applicants have herein amended Claim 15 to more particularly point out aspects

of the claimed invention.


Applicants reiterate that the present invention as recited in independent

Claims 1,3, and 8 comprises a translation process that responds to an exception

during execution of a stored translated instruction by rolling back to a point in

execution at which correct state of a target processor is known.  Once the

rollback has been implemented, target instructions are interpreted in order from

the point in execution at which correct state of a target processor is known.  In

one embodiment data relating to the number of times a target instruction is

executed at points which branches occur is recorded.  Based on statistics

regarding the number of times a particular branch has been taken, that particular

sequence of instructions may be speculatively considered to be a super-block. The sequence may be translated, optimized, and linked. The translated optimized, linked result is stored as such in the translation cache. If the speculation is true, then significant execution time is saved. If not, an exception is taken which returns the code morphing software to the interpreter.

Applicants point out that at least one widely used definition of "speculative execution" in the computer science field refers to speculative execution as being the execution of code whose result may not actually be needed. Additionally, applicants respectfully point out that "speculatively translating target instructions into host instructions based on a likelihood of a branch being taken" as recited in claim 15, is explicitly supported by the above cited paragraph (at least). Based on determined likelihood (e.g., statistics), a particular sequence of instructions may be speculatively translated, optimized, and linked, and the result stored as such in the translation cache.

Accordingly, Applicants point out the present invention as explicitly recited in Claim 15 is definite within the meaning of 35 U.S.C. Section 112.

With respect to Claim 17, Claim 17 recites limitations wherein statistics are used which include the number of times a branch of target instructions have executed. Applicants point to the specification of the present application, at the paragraph beginning on from page 13, line 19, which explicitly recites:

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For example, if a target instruction includes a branch, the address of the instruction to which it branches may be recorded along with the number of times the branch has been executed. Then, when a number of sequential target instructions are executed by the interpreter, a history of branching and branch addresses will have been established. From this, the likelihood of a particular branch operation taking place may be determined.

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Applicants point out that the above explanation renders Claim 17 definite within the meaning of 35 U.S.C. Section 112.

## 35 U.S.C. Section 132 rejections:

Accordingly, no new matter is entered by the previously added Claims 15 and there is no valid 35 U.S.C. Section 132 rejection.

## 35 U.S.C Section 102 Rejections:

Claims 1-9 are rejected under 35 U.S.C. Section 102(e) as being anticipated by Lethin in view of Babaian. Applicants respectfully traverses.

Applicants point out that the present invention as recited in independent Claims 1,3, and 8 comprises a dynamic translation process that responds to an exception during execution of a stored translated instruction by rolling back to a previous point in execution at which correct state of a target processor is known (emphasis added). The translation process is ongoing and on-the-fly. Once the rollback has been implemented, target instructions are interpreted in order from the point in execution at which correct state of a target processor is known.

Applicants point out that this is completely different from the cited references, which discloses a mechanism whereby code is executed _from_ an exception point up to a point where a guaranteed application state recoverable point occurs. There appears to be no recitation regarding ongoing and on-the-fly translation. Accordingly, Applicants respectively assert that the claimed invention is not anticipated by cited references within the meaning of 35 U.S.C. Section 102(e).

## 35 U.S.C Section 103 Rejections

For the same rationale as described above, regarding a dynamic translation process, Applicants submit that these limitations are not shown or suggested by the cited references. Accordingly, the claimed invention is not rendered obvious by the cited references within the meaning of 35 U.S.C Section 103.

## CONCLUSION

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 23-0085.

Respectfully submitted,

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Dated: _9/10_, 2004

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